

# Mangan Software Solutions SPInspector V1.8 New Features

**Nezar M. Faitouri**  
Director SPI Services  
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# Agenda

- Who we are.
- What is SPInspector.
- New Features/Functions
  - New installation or append to an existing Installation.
  - Multi-Domain Connectivity.
  - Specification (Data Sheets) Audits.
    - Configuration and Field Selection.
    - Specification (Data Sheets) KPI's.
    - Specification (Data Sheets) Translation (DDDL, DDDW, etc).
    - Adding additional fields to Audit reports.
  - Custom Module and Database Passwords.

# Who We Are

- A Control Systems and Automation, Specialty Engineering Company.
- An Employee Owned Company (ESOP) with +300 employees and 8 offices nationwide.



- 20+ Years
- Houston, Atlanta, London
- Markets Served: Refining, Upstream, Midstream, Petrochemical



# What is SPInspector

- One of the Mangan's major customers in the Oil & Gas field approached Mangan to create a set of audit procedures to ensure all of their SPI database sites (7 sites in the USA) have:
  - Data Consistency.
  - Healthy Database.
  - Project Review before merging (QA/QC).
  - Project management review before close out.
- SPInspector is a complimentary software that connects to SPI databases to execute data audits for:
  - Data Consistency.
  - Data Requirements.
  - Duplicate Items.
  - Gap Analysis.
  - Hidden database field issues.
  - And other.
- In general, SPInspector allows for timely communication between SPI/SI admin's and Users, allowing users to review project work and deliverables, and managers to review statuses (KPI's) for deliverables and schedule.

# What is SPInspector

- SPInspector modules (groups) includes sub-groups.

**Duplicate Items**  
 SPI Duplicate items are never recommended in SPI. They cause multiple problems with filtering & sorting, reports, and data-transfers. The following set of Audit procedures will identify duplicate SPI Instrument-Index items, Wiring Items and Document Items.

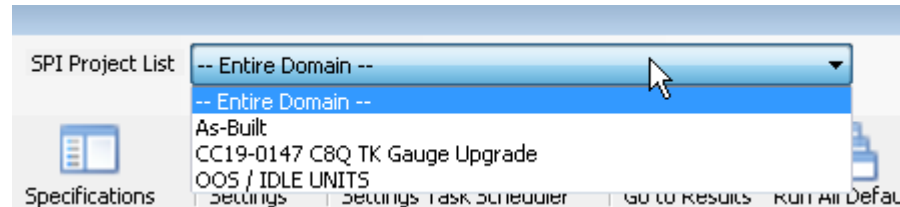
Instrument Index: **Wiring - Part 1** | Wiring - Part 2 | Wiring - Part 3 | Documents

Select All (8 reports)

Sub-Group	Description	Last Executed	Base Filename
Loops	This is not recommended because it causes issues with assigning tags to loops, filtering & sorting, data-transfers, and generating SPI reports; such as browser views. However, it may be necessary dependent on site requirements and the	Never	duplicate_Loops
Tags	This is not recommended because it causes issues when filtering & sorting, or when generating SPI reports; such as browser views. However, it may be necessary dependent on site requirements and the naming convention. This issue can	Never	duplicate_Tags
P&ID's	This is not recommended and must be fixed because it causes issues with data-transfers, and when generating SPI reports; such as Loop Drawings or Index Reports. This may also be caused by an unsuccessful project import, project claim,	Never	duplicate_PID_Numbers
Lines	This is not recommended because it causes issues with assigning lines to tags, data-transfers, filtering & sorting, and generating SPI reports; such as browser views. This issue can be fixed either manually or via SQL.	Never	Duplicate_Lines
Equipment	This is not recommended because it causes issues when assigning equipment to loops & tags, filtering & sorting, data-transfers, and generating SPI reports; such as browser views. This issue can be fixed either manually or via SQL.	Never	duplicate_Equipments
Instrument Types	This is not recommended and must be fixed because it causes issues with assigning instrument-types to tags, filtering & sorting, data-transfers, and generating SPI reports; such as browser views. However, it may be necessary dependent	Never	duplicate_Instrument_Types

# What is SPInspector

- The data audits can be performed against the entire SPI/SI domain or As-Built or a Project.



- Custom query module allows users to create their own SQL statements.
  - Only Select SQL statements are allowed to be used.

Query SQL SQLstatement:

DELETE FROM component

SPIInspector

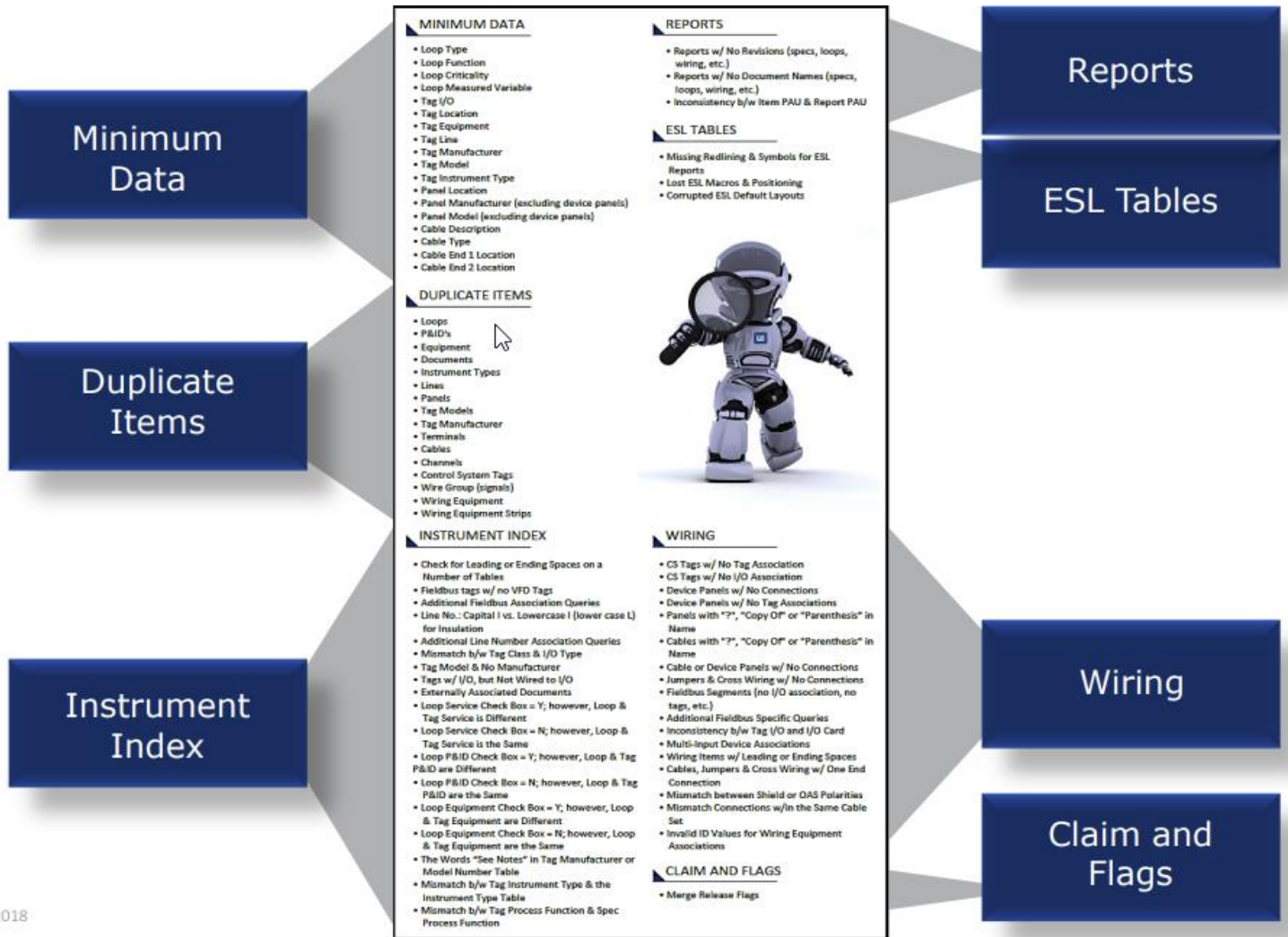
A valid SELECT query statement to create or update a Custom Query.

OK

\* Required Fields  
 \*\* If the SQL statement does not include the eng\_proj\_id and/or the engineer\_name (SPI project ID and/or SPI project Name), SPInspector will execute the SQL against the entire SPI domain

# What is SPInspector

- The different types of audits.

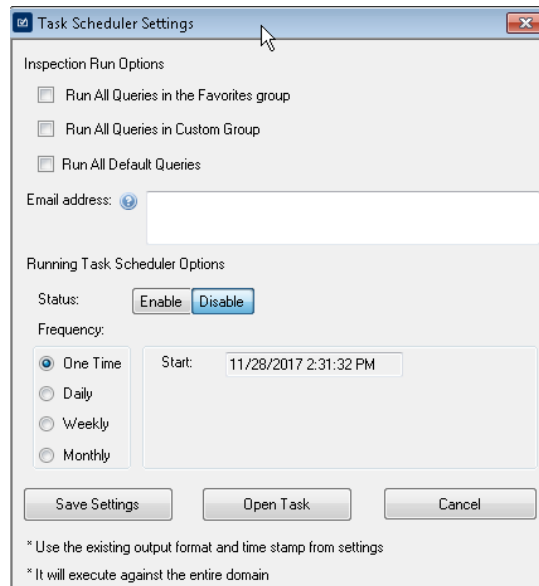


# What is SPInspector

- All output results are saved automatically either in a CSV or XLSX format

Project_Name	Plant_Name	Panel_Name	No_Of_Recor
APM to HPM Upgrades	ROBINSON REFINERY	66FQJ 0181	3
As-Built	ROBINSON REFINERY	16LY 0220	2
As-Built	ROBINSON REFINERY	21LU 1033 B	2
As-Built	ROBINSON REFINERY	21LU 0801 A	2
As-Built	ROBINSON REFINERY	21LU 0904 A	2
As-Built	ROBINSON REFINERY	21LT 1033 B	2
As-Built	ROBINSON REFINERY	21TE 0801 A	2
As-Built	ROBINSON REFINERY	21TE 0904 A	2
As-Built	ROBINSON REFINERY	21XS 1201	2
As-Built	ROBINSON REFINERY	60FI6011	2
As-Built	ROBINSON REFINERY	60FI 7860	2
As-Built	ROBINSON REFINERY	83ICP103	2
As-Built	ROBINSON REFINERY	CEMS SAMPLE SYSTEM	2
As-Built	ROBINSON REFINERY	GUA-82F0630	2
As-Built	ROBINSON REFINERY	JB	2
As-Built	ROBINSON REFINERY	SHELTER ALARM PLC	2
CIE MR436 FCCU Electrical Upgr	ROBINSON REFINERY	83ICP103	2
FCCU Alky Optimization	ROBINSON REFINERY	07FT 2260	2
FCCU Alky Optimization	ROBINSON REFINERY	7LAT 1000	2
Misc Projects	ROBINSON REFINERY	16UA 1190	3
Misc Projects	ROBINSON REFINERY	16UA 1200	2
Misc Projects	ROBINSON REFINERY	83ICP103	2
Misc Projects	ROBINSON REFINERY	JB	2
Q16178-05 FCCU Alky OSBL	ROBINSON REFINERY	21ZSC 53410	2

- Task Scheduler



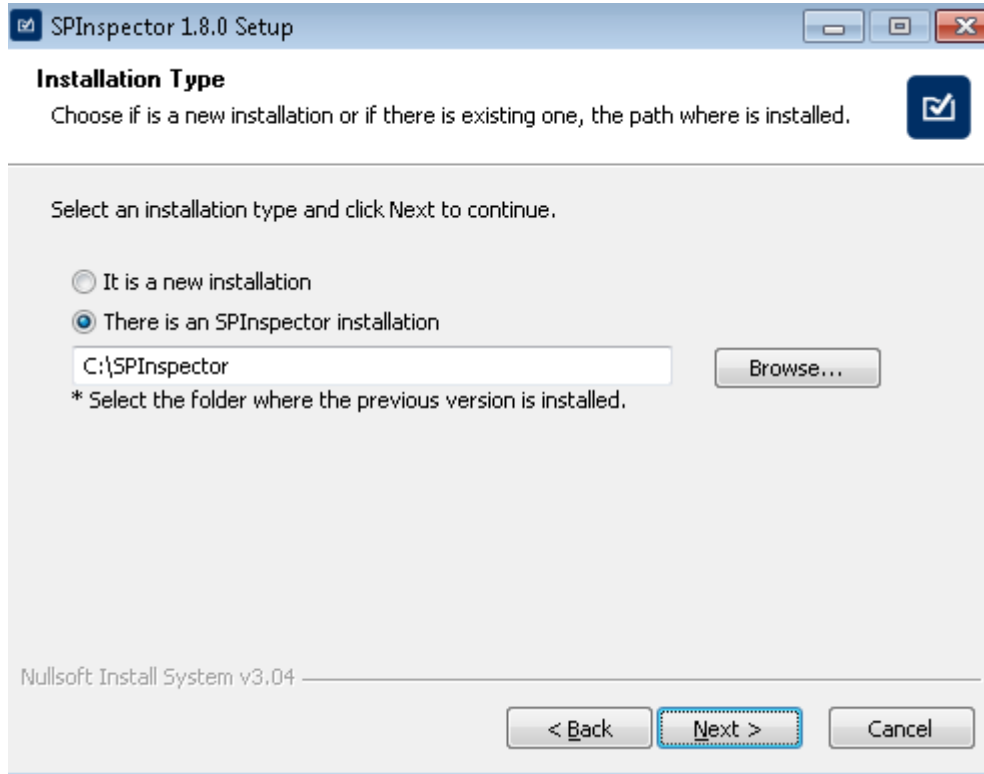


# *What is SPInspector*

- For more information, please Contact and visit:
  - Nezar Faitouri ([nfaitouri@manganinc.com](mailto:nfaitouri@manganinc.com)).
  - Joseph O'Dell ([jodell@manganinc.com](mailto:jodell@manganinc.com)).
  - <https://mangansoftware.com/spinspector/>
  - <http://spi-ltuf.org/20140211/7%20SPInspector.pdf>

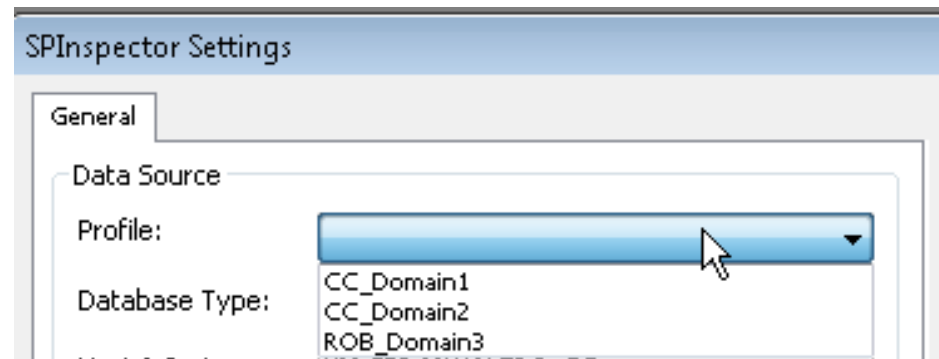
# New Features: Installation

- Create a New Installation or Append to an existing Installation.
  - New installation allows for using a previous version and latest version.
  - Append to an existing installation allows for upgrading to the latest version.
    - The append installation prevents the lose of previously developed custom queries and favorite queries.



# New Features: Multiple Database Configuration

- Create multiple database/domain configurations (Profiles).
  - Similar to SPI/SI Database (Profile) function.
  - A drop down selection for the configuration names.
- Benefits:
  - Configurations can be either for Oracle or MS-SQL and for different SPI/SI versions.
  - Eliminates users from having to provide database credentials everytime when switching between databases.



# *New Features: Specification Audits*

- A new group (Module) that allows for auditing instrument specification data fields.
- Dependence on SPI/SI Spec Data Dictionary (SpecDD) for each specification form.
- Benefits:
  - Ability to select instrument specification data fields that are required to have engineering data.
  - Ability to provide a percent completion per instrument specification data (Selected fields or Entire instrument specification data).
- Additional Functions:
  - Ability to Export and Import Configuration from one installation to another.
  - Ability to Add additional fields to the result files such as Status, Criticality, and other. This capability dependence on the SPI/SI tables that are available to be mapped to SPI/SI spec pages/forms.
  - Ability to add translation to the XML file for specification DDDL and DDDT fields. Example: Value G in a field means @Gage in the Spec Display.
  - Ability to protect configurations by using a password.

# *New Features: Specification Audits*

- The module consists of:
  - Data Field Selections.
  - Data Field Selection Reports.
  - % Data Field Selection.
  - % Full Data.
  - Data Fields Selection Export/Import.
  - Default Column Export/Import (Adding columns (fields)).
  - Rename Tabs.

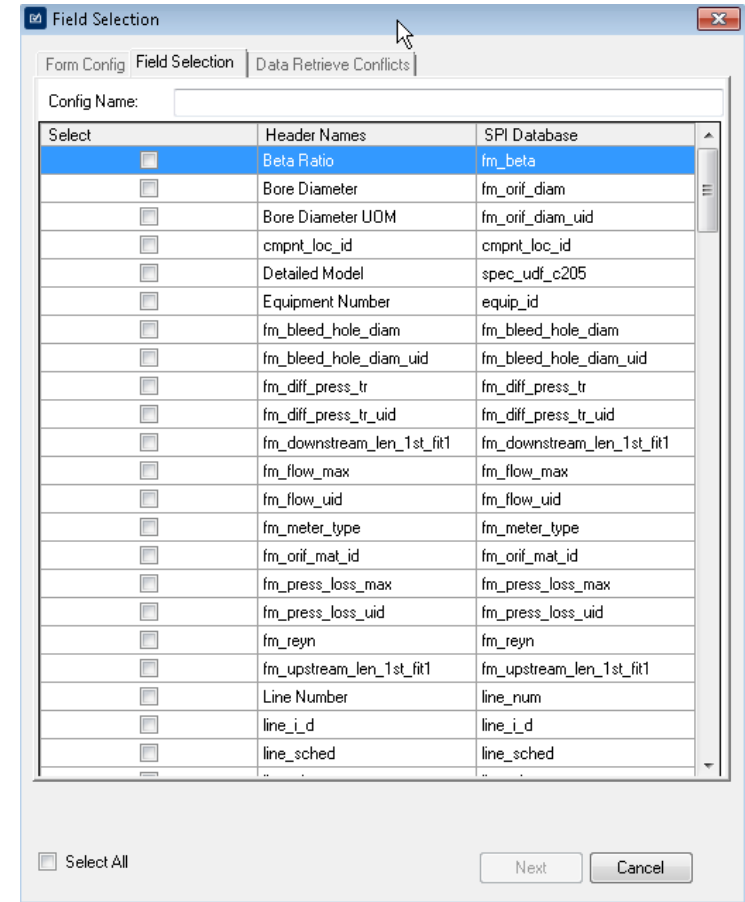
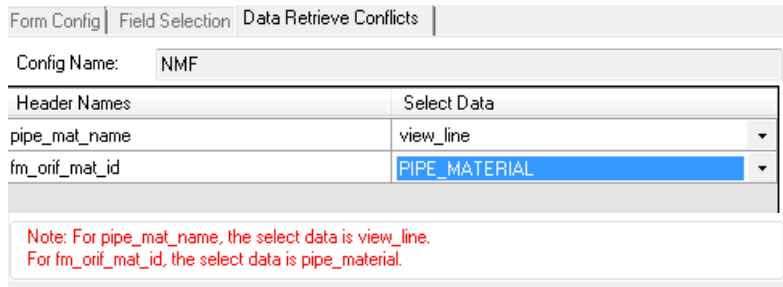
## Specifications

Specifications

Data Field Selection | Data Field Selection Report | % Data Field Selection | % Full Data | Data Field Selection Export/Import | Default Columns Export/Import | Rename Tabs

# New Features: Specification Audits

- Field Selection per SpecDD.
- Resolution of Conflicts with field names.
  - Orif\_pipe\_mat\_id in Flow and Line Tables.
  - Notes are provided to resolve conflicts.



# New Features: Specification Audits Results

- Result File for selected fields.
  - Notice, Yellow cells indicates blank (No data is provided).

	A	B	C	D	E	F	G	H	I	J
1	Project Name	Plant Name	Area Name	Unit Name	Instrument Type Desc	Tag Criticality	Tag Number	02. GEN: Service	41b. BODY: Number of Seats	09d. GEN: Outlet Line ID
2	As-Built	Domain 1	A1	01 - CRUDE / KERSONE TREATER	Control Valve	*	01FV 0020	ATMOSPHERIC TPA FLOW RATE	1	15.25
3	As-Built	Domain 1	A1	01 - CRUDE / KERSONE TREATER	Control Valve	*	01FV 0030	ATMOSPHERIC IPA FLOW RATE	1	
4	As-Built	Domain 1	A1	01 - CRUDE / KERSONE TREATER	Control Valve	*	01FV 0040	ATMOSPHERIC BPA FLOW RATE	1	
5	As-Built	Domain 1	A1	01 - CRUDE / KERSONE TREATER	Control Valve	*	01FV 0050	KEROSENE PRODUCT FROM STRIPPER	2	7.981
6	As-Built	Domain 1	A1	01 - CRUDE / KERSONE TREATER	Control Valve	*	01FV 0051	KEROSENE PRODUCT FROM STRIPPER	1	4.026
7	As-Built	Domain 1	A1	01 - CRUDE / KERSONE TREATER	Control Valve	*	01FV 0060	DIESEL PRODUCT FROM STRIPPER	2	7.981
8	As-Built	Domain 1	A1	01 - CRUDE / KERSONE TREATER	Control Valve	*	01FV 0080	1F-2 PASS 1 CHARGE	1	3.068
9	As-Built	Domain 1	A1	01 - CRUDE / KERSONE TREATER	Control Valve	*	01FV 0090	1F-2 PASS 2 CHARGE	1	3.068
10	As-Built	Domain 1	A1	01 - CRUDE / KERSONE TREATER	Control Valve	*	01FV 0100	1F-2 PASS 3 CHARGE	1	3.068
11	As-Built	Domain 1	A1	01 - CRUDE / KERSONE TREATER	Control Valve	*	01FV 0110	1F-2 PASS 4 CHARGE	1	3.068

G	L	M	N	
Tag Number	04a. GEN: Location	07. GEN: Line Number	85. PURCH: Manufacturer	86. PURCH: Model
03LV 207	FIELD	3PG41-2"-C11	FISHER	667 ES
03LV 209	FIELD	3LC10-2"-B11	FISHER	512R-ES
03PV 0010	FIELD	3FG40-6"-A1-1h-ST(W)	FISHER	*
03PV 0020	FIELD	3FG38-6"-A1	FISHER	*
03PV 0030	FIELD	3FG36-4"-A1	FISHER	*
03PV 0040	FIELD	3FG34-4"-A1	FISHER	*
03PV 0050	FIELD	3BD23-8"-E41	FISHER	476D-A
03PV 0070	FIELD	3P92-4"-B11	FISHER	657 ED
03PV 0110	FIELD	3FG42-3"-A1-1h-ST(W)	FISHER	*
03PV 0180	FIELD	3PG37-4"-B11	FISHER	1052-V500
03PV 0540	FIELD	3H21-4"-F2H	FISHER	657 ET
03PV 0570	FIELD	3H22-3"-F2H	FISHER	667 ET

# New Features: Specification Audits Results

- Result File for Selected Fields and Percent Completion.

	A	B	C	D	E
1	<b>Tag Number</b>	<b>Minimum Data Required</b>	<b>Data Entered</b>	<b>Blank Fields</b>	<b>% Completed</b>
2	01FV 0020	11	9	2	81.82 %
3	01FV 0030	11	8	3	72.73 %
4	01FV 0040	11	8	3	72.73 %
5	01FV 0050	11	9	2	81.82 %
6	01FV 0051	11	9	2	81.82 %
7	01FV 0060	11	9	2	81.82 %



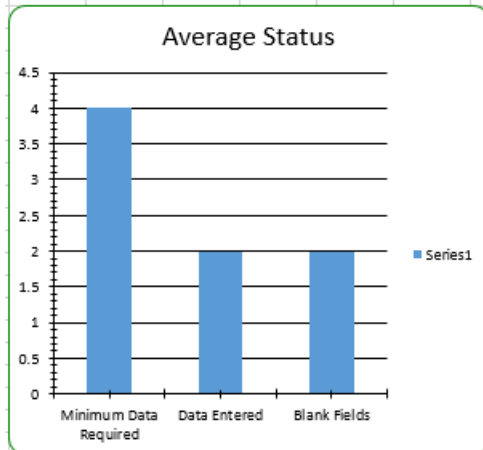
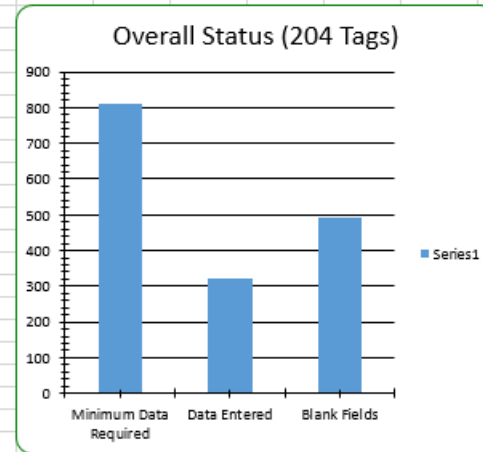
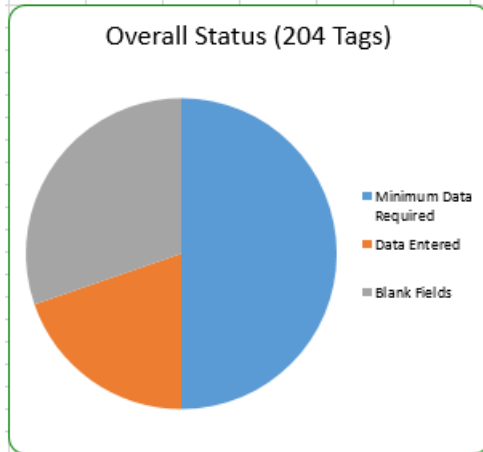
# New Features: Specification Audits Results

- Result File for Overall Percent Completion.

	A	B	C	D	E
1	<b>Tag Number</b>	<b>Minimum Data Required</b>	<b>Data Entered</b>	<b>Blank Fields</b>	<b>% Completed</b>
2	01FV 0020	184	76	108	41.3 %
3	01FV 0030	184	86	98	46.74 %
4	01FV 0040	184	86	98	46.74 %
5	01FV 0050	184	68	116	36.96 %
6	01FV 0051	184	127	57	69.02 %

# New Features: Specification Audits Results

- Result File for Overall Percent Completion with KPI Charts.



# New Features: Specification Audits Translation

- Adding Translation.

```

spi_dd_data_translation - Notepad
File Edit Format View Help
<?xml version="1.0" encoding="utf-8"?>
<SPIDDataTranslation>
  <inst_range_uflg_min>
    <value>
      <data>G</data>
      <translation>@Gage</translation>
    </value>
    <value>
      <data>A</data>
      <translation>@Absolute</translation>
    </value>
    <value>
      <data>B</data>
      <translation>@Base</translation>
    </value>
    <value>
      <data>S</data>
      <translation>@Standard</translation>
    </value>
    <value>
      <data>N</data>
      <translation>@Normal</translation>
    </value>
    <value>
      <data>F</data>
      <translation>@Flow</translation>
    </value>
    <value>
      <data>D</data>
      <translation>@Differential</translation>
    </value>
  </inst_range_uflg_min>
  <inst_range_uflg_max>
    <value>
      <data>G</data>
      <translation>@Gage</translation>
    </value>
    <value>
      <data>A</data>
      <translation>@Absolute</translation>
    </value>
  </inst_range_uflg_max>
</SPIDDataTranslation>

```

```

spi_dd_column_translation - Notepad
File Edit Format View Help
<?xml version="1.0" encoding="utf-8"?>
<SPIDataDictionaryTranslation>
  <name>Data Dictionary for SPI Database</name>
  <cmpnt_func_type_id>cmpnt_func_type_desc</cmpnt_func_type_id>
  <cmpnt_critical_id>CRITICALITY_NAME</cmpnt_critical_id>
  <udt_support_id1>NAME</udt_support_id1>
  <udt_support_id2>NAME</udt_support_id2>
  <udt_support_id3>NAME</udt_support_id3>
  <udt_support_id4>NAME</udt_support_id4>
  <udt_support_id5>NAME</udt_support_id5>
  <udt_support_id6>NAME</udt_support_id6>
  <udt_support_id7>NAME</udt_support_id7>
  <udt_support_id8>NAME</udt_support_id8>
  <udt_support_id9>NAME</udt_support_id9>
  <udt_support_id10>NAME</udt_support_id10>
  <udt_support_id11>NAME</udt_support_id11>
  <udt_support_id12>NAME</udt_support_id12>
  <udt_support_id13>NAME</udt_support_id13>
  <udt_support_id14>NAME</udt_support_id14>
  <udt_support_id15>NAME</udt_support_id15>
  <udt_support_id16>NAME</udt_support_id16>
  <signal_type_id>signal_type_name</signal_type_id>
  <cmpnt_cat_id>TAG_CATEGORY_NAME</cmpnt_cat_id>
  <pid_no>dwg_name</pid_no>
  <line_id>line_internal_dia</line_id>
  <line_id>line_num</line_id>
  <fm_orif_mat_id>pipe_mat_name</fm_orif_mat_id>
  <cmpnt_cat_id>tag_category_name</cmpnt_cat_id>
  <cv_valve_type_id>cv_valve_type_id</cv_valve_type_id>
  <cv_char_id>cv_char_id</cv_char_id>
</SPIDataDictionaryTranslation>

```

# New Features: Specification Audits Adding Fields

- Adding Fields to the result files.

Column	SQL
Project Name	case when engineering_project.eng_proj_id = 0 then 'As-Built' else engineering_project.engineer_name end
Plant Name	plant.plant_name
Area Name	plant_area.area_name
Unit Name	plant_area_unit.unit_name
Instrument Type Desc	component_function_type.cmpnt_func_type_desc
Tag Criticality	case when cmpnt_criticality.criticality_name in ('*',',') then 'No Criticality Assigned' else cmpnt_criticality.criticality_name end
PD Case Name	case when process_condition.case_name in ('*',',') then 'No Process Data Case' else process_condition.case_name end
Tag Status	case when component_handle.cmpnt_handle_name in ('*',',') then 'No Status Assigned' else component_handle.cmpnt_handle_name end

```

spi_dd_optional_selection - Notepad
File Edit Format View Help
KSPIDataDictionaryoptionalselection
<default_column>
  <column>
    <id>engineer_name</id>
    <name>Project Name</name>
    <sql>case when engineering_project.eng_proj_id = 0 then 'As-Built' else engineering_project.engineer_name end</sql>
  </column>
  <column>
    <id>plant_name</id>
    <name>Plant Name</name>
    <sql>plant.plant_name</sql>
  </column>
  <column>
    <id>area_name</id>
    <name>Area Name</name>
    <sql>plant_area.area_name</sql>
  </column>
  <column>
    <id>unit_name</id>
    <name>Unit Name</name>
    <sql>plant_area_unit.unit_name</sql>
  </column>
  <column>
    <id>cmpnt_func_type_desc</id>
    <name>Instrument Type Desc</name>
    <sql>component_function_type.cmpnt_func_type_desc</sql>
  </column>
  <column>
    <id>tag_criticality</id>
    <name>Tag Criticality</name>
    <sql>case when cmpnt_criticality.criticality_name in ('*',',') then 'No Criticality Assigned' else cmpnt_criticality.criticality_name end</sql>
  </column>
  <column>
    <id>case_name</id>
    <name>PD Case Name</name>
    <sql>case when process_condition.case_name in ('*',',') then 'No Process Data Case' else process_condition.case_name end</sql>
  </column>
  <column>
    <id>cmpnt_handle_name</id>
    <name>Tag Status</name>
    <sql>case when component_handle.cmpnt_handle_name in ('*',',') then 'No Status Assigned' else component_handle.cmpnt_handle_name end</sql>
  </column>
</default_column>
</SPIDataDictionaryoptionalselection>

```

# New Features: Custom Module and Passwords

- Password Protection for Configurations and Result File.

Field Selection dialog box showing configuration details and a table of field selections.

Form Config | Field Selection | Data Retrieve Conflicts

Config Name: 314

Password: [masked]  Is Password Protected?

Password hint: FORM NUMBER

Caution: If you lose or forget the password, it cannot be recovered. It is advisable to keep a list of passwords

Select	Header Names	SPI Database
<input checked="" type="checkbox"/>	Beta Ratio	fm_beta
<input checked="" type="checkbox"/>	Bore Diameter	fm_orif_diam
<input checked="" type="checkbox"/>	Bore Diameter UOM	fm_orif_diam_uid
<input type="checkbox"/>	cmpnt_loc_id	cmpnt_loc_id
<input type="checkbox"/>	Detailed Model	spec_udf_c205
<input type="checkbox"/>	Equipment Number	equip_id
<input type="checkbox"/>	fm_bleed_hole_diam	fm_bleed_hole_diam
<input type="checkbox"/>	fm_bleed_hole_diam_uid	fm_bleed_hole_diam_uid

Manage Spec Form Configuration dialog box with a Password Protection sub-dialog box overlaid.

Form No: 314

Config Name: 314

[Duplicate] [Update] [Delete]

FormCNum	ConfigName	PasswordHint
314	314	FORM NUMBER
314	314_NMF	

**Password Protection** dialog box:

Password: [input field]

Ok [button] Cancel [button]

Password hint: FORM NUMBER

\* To show a list from the Form  
 \* To Duplicate or double click  
 \* Duplicating  
 Deleting a configuration name does not require an update as the Deletion is automatic

# New Features: Custom Module and Passwords

- Password Protection for Configurations and Result File.

